

# Dell Vostro 270

## Owner's Manual

Regulatory Model: D11M  
Regulatory Type: D11M002



# Notes, Cautions, and Warnings



**NOTE:** A NOTE indicates important information that helps you make better use of your computer.



**CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



**WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

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# Working on Your Computer

## Before Working Inside Your Computer


Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:


- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.


 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at [www.dell.com/regulatory\\_compliance](http://www.dell.com/regulatory_compliance)

 **CAUTION:** Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

 **CAUTION:** To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

 **CAUTION:** Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

 **CAUTION:** When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.


 **NOTE:** The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning Off Your Computer).

 **CAUTION:** To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

3. Disconnect all network cables from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets.
5. Press and hold the power button while the computer is unplugged to ground the system board.
6. Remove the cover.


 **CAUTION:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

## Turning Off Your Computer


 **CAUTION:** To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:

- In Windows 7:

Click **Start** , then click **Shut Down**.

- In Windows Vista:

Click **Start** , then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.



- In Windows XP:


Click **Start** → **Turn Off Computer** → **Turn Off**. The computer turns off after the operating system shutdown process is complete.

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

## After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

1. Replace the cover.

 **CAUTION:** To connect a network cable, first plug the cable into the network device and then plug it into the computer.

2. Connect any telephone or network cables to your computer.
3. Connect your computer and all attached devices to their electrical outlets.
4. Turn on your computer.
5. If required, verify that the computer works correctly by running the Dell Diagnostics.

# Removing and Installing Components

This section provides detailed information on how to remove or install the components from your computer.

## Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- Small plastic scribe

## Removing the Cover

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the screws that secure the cover to the computer.



3. Slide the computer cover towards the back of the computer.



4. Remove the computer cover.



## Installing the Cover

1. Place the cover on the chassis.
2. Slide the computer cover towards the front of the computer.
3. Replace the screws that secure the cover to the computer.
4. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Front Bezel

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Pry the front bezel-retention clips away from the chassis.



4. Rotate the bezel away from the computer to release the hooks on the opposite edge of the bezel from the chassis.





## Installing the Front Bezel

1. Place the hooks on the notches in the computer.
2. Rotate the front bezel towards the computer.
3. Press the front bezel till the tabs snap into place.
4. Replace the cover.
5. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Expansion Card

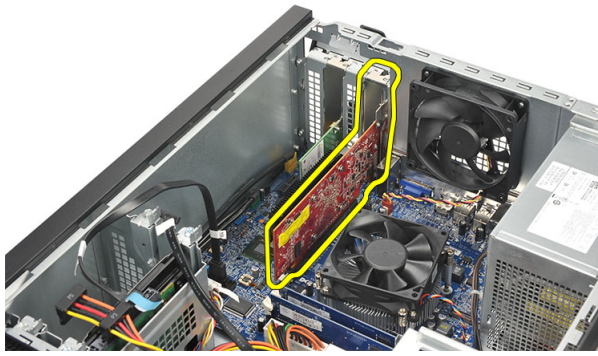
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Press the release tab on the card-retention latch.



4. Press on the release-lever to release the securing tab from the notch in the card.



5. Ease the card up and out of its connector and remove it from the computer.

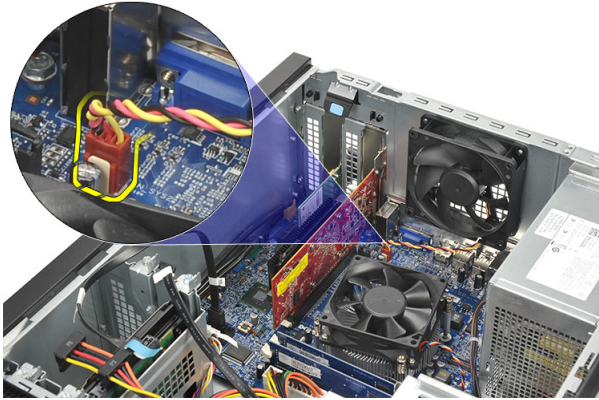


## Installing the Expansion Card

1. Place the card into its socket and press it in till it snaps into place.
2. Secure the expansion card by pushing-in the card-retention latch till it snaps into place.
3. Replace the cover.
4. Follow the procedures in *After Working Inside Your Computer*.

## Removing the System Fan

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Disconnect the fan cable from the system board.



4. Remove the screws that secure the fan to the back of the computer.



5. Remove the fan from the computer.

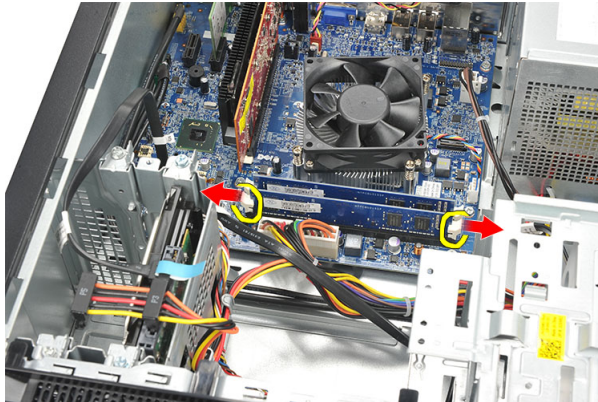


## Installing the System Fan

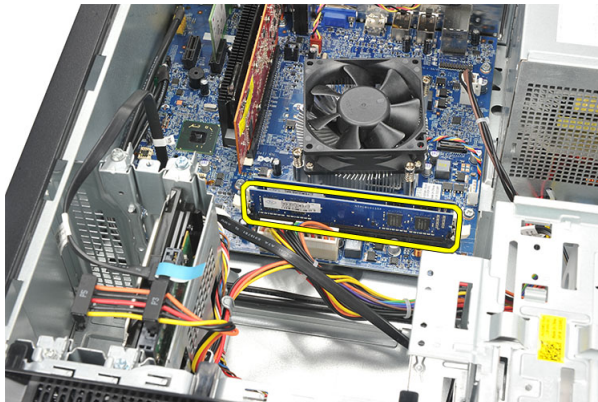
1. Place the fan at its location on the computer.
2. Replace the screws that secure the fan to the back of the computer.
3. Connect the fan cable to the system board.
4. Replace the cover.
5. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Memory

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Press down on the memory-retention tabs on each side of the memory module.



4. Lift the memory module out of the connector on the system board.



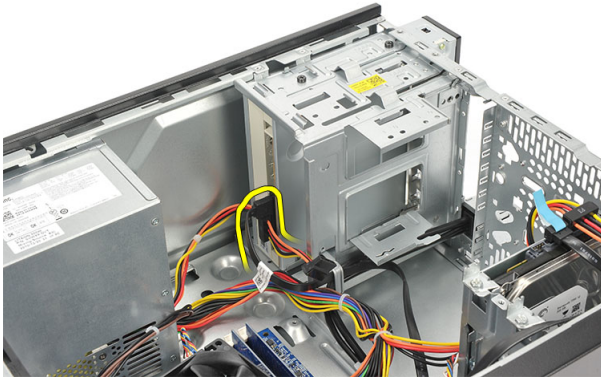
## Installing the Memory

1. Press the memory module into its connector on the system board till it snaps into place.
2. Replace the cover.
3. Follow the procedures in *After Working Inside Your Computer*.

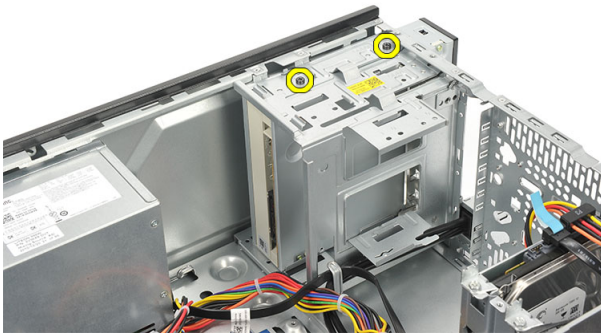
## Removing the Optical Drive

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Disconnect the data cable and power cable from the optical drive.

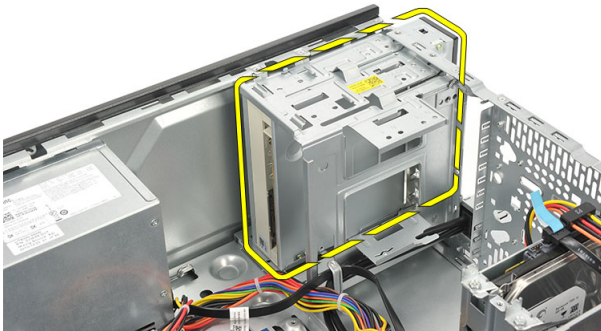




4. Remove the screws that secure the optical drive to the computer.



5. Slide the optical drive through the front of the computer.

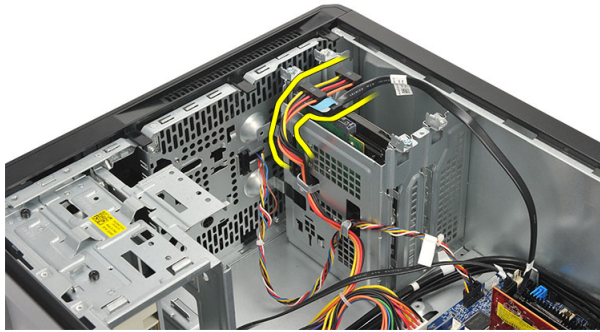


## Installing the Optical Drive

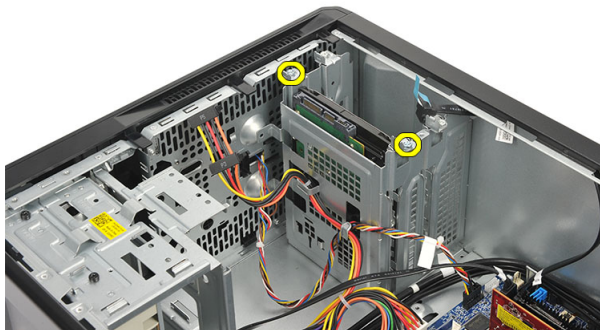
1. Slide the optical drive through the front of the computer.
2. Replace the screws that secure the optical drive to the computer.
3. Connect the data cable and power cable to the optical drive.
4. Replace the cover.
5. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Hard Drive

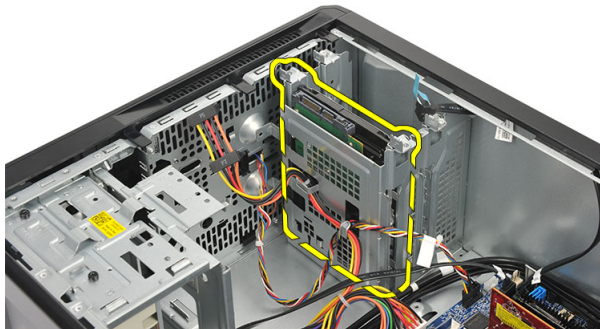
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Disconnect the SATA cable and power cable from the hard drive.



4. Remove the screws that secure the hard drive to the computer.



5. Remove the hard drive from the computer.



6. Remove the screw to release the brackets from the hard drive.

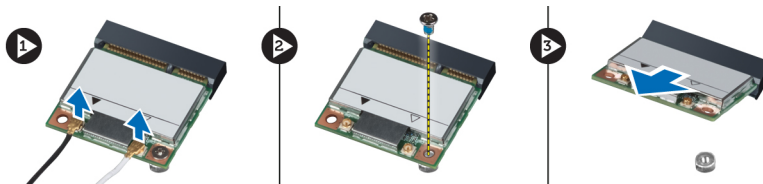


## Installing the Hard Drive

1. Replace the screws to secure the brackets to the hard drive.
2. Replace the hard drive into the computer.
3. Replace the screws that secure the hard drive to the computer.
4. Connect the SATA cable and power cable to the hard drive.
5. Replace the cover.
6. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Wireless Local Area Network (WLAN) Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Disconnect the WLAN cables.



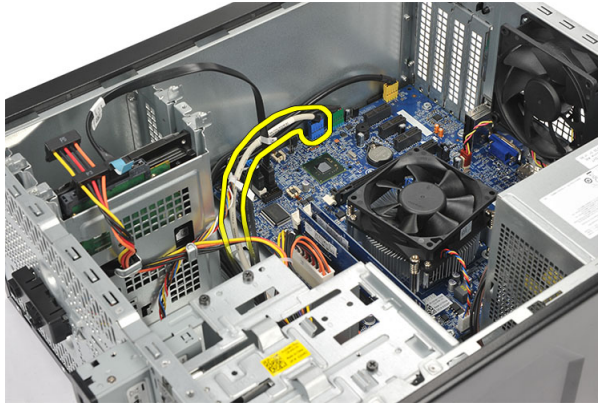
4. Remove the screw that secures the WLAN card to the connector.
5. Lift and remove the WLAN card from the computer.

## Installing the Wireless Local Area Network (WLAN) Card

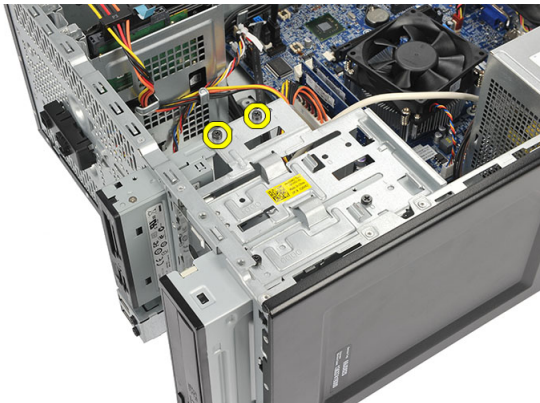
1. Place the WLAN card on its connector and push it in, to secure it to the connector.
2. Tighten the screw that secures the WLAN card to the connector.
3. Connect the WLAN cables.
4. Replace the cover.
5. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Card Reader

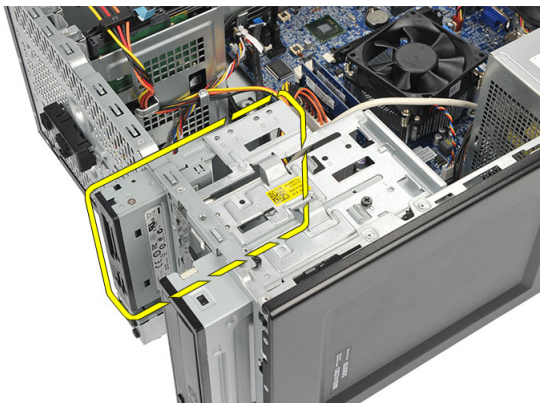
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the:
  - a) cover
  - b) front bezel
3. Disconnect the multimedia-card reader cable from the system board. Disengage the cable from the metal clip(s), if present, that secure(s) the cable along the inside of the computer.



4. Remove the screws that secure the multimedia-card reader into the drive cage.



5. Slide the multimedia-card reader out through the front of the computer.



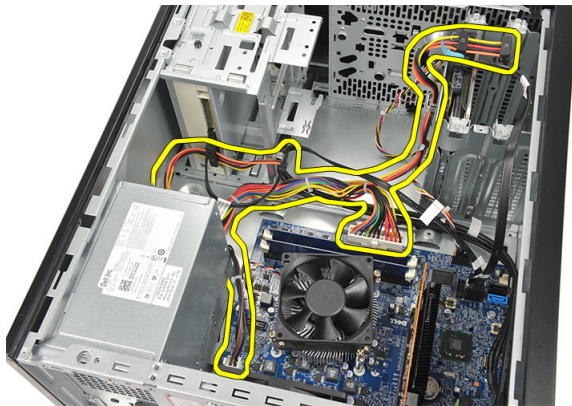


## Installing the Card Reader

1. Slide the multimedia-card reader in through the front of the computer.
2. Replace the screws that secure the multimedia-card reader to the drive cage.
3. Route the cable thorough the metal clip(s), if present, to secure the cable along the inside of the computer.
4. Connect the multimedia-card reader cable to the system board.
5. Replace the:
  - a) front panel
  - b) cover
6. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Power Supply Unit (PSU)

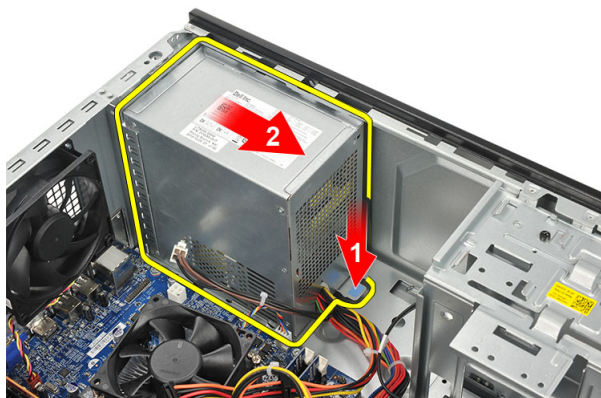
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Disconnect the power-supply cables connected to the hard drive (s), optical drive (s), and system board.



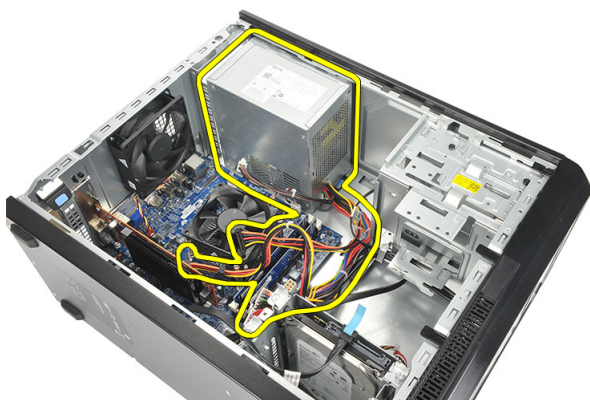
4. Remove the screws that secure the power-supply unit to the back of the computer.



5. Press the release button located on the floor of the system chassis, and then slide the power-supply unit toward the front of the computer.



6. Lift the power-supply unit and remove it from the computer.

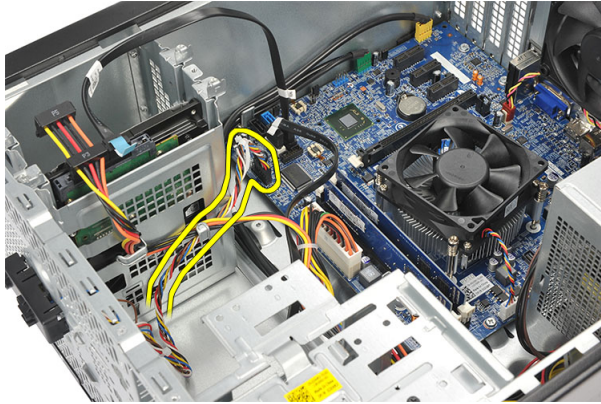


## Installing the Power Supply Unit (PSU)

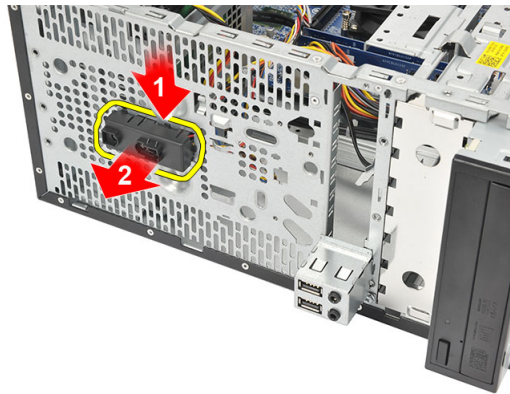
1. Place the power-supply unit at its location in the computer.
2. Slide the power-supply unit towards the back of the computer till it snaps into place.
3. Replace the screws that secure the power-supply unit to the back of the computer.
4. Connect the power supply cables to the hard drive (s), optical drive (s), and system board.
5. Replace the cover.
6. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Power Switch

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Disconnect and un-thread the power switch and hard-drive LED cable from the system board.



4. Remove the clip and the tabs holding the power switch/LED assembly from the computer.



## Installing the Power Switch

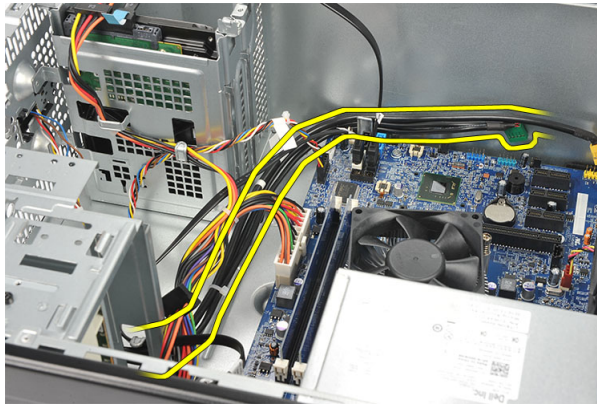
1. Push the power switch/LED assembly into the computer till it snaps into place.
2. Connect the power switch and hard drive LED cable to the system board.
3. Replace the cover.
4. Follow the procedures in *After Working Inside Your Computer*.

## Removing the I/O Panel

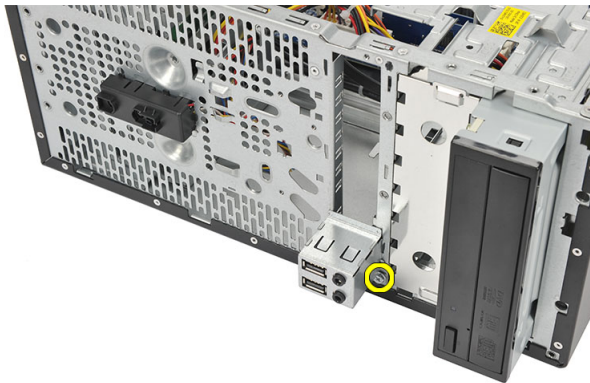
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Disconnect the audio cable and USB cable from the system board.



4. Un-thread the cable routing from the metal clips.

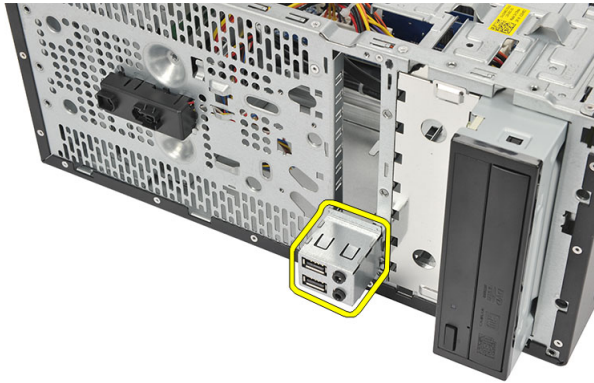


5. Remove the screw that secures the I/O panel to the computer.



6. Remove the I/O panel from the computer.





## Installing the I/O Panel

1. Place the I/O panel at its location on the computer.
2. Replace the screw to secure the I/O panel to the computer.
3. Route the cables through the metal clips.
4. Replace the cover.
5. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Processor

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Disconnect the heat sink and fan-assembly cable from the system board.



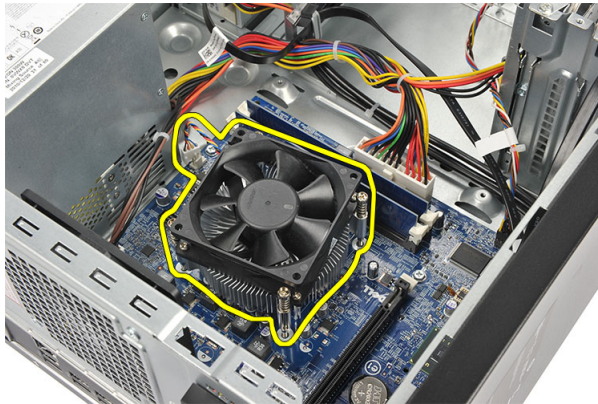
4. Loosen the captive screws that secure the heat sink and fan assembly to the system board.



5. Lift the heat sink and fan assembly, and remove it from the computer.



**NOTE:** Place the assembly with the fan on a flat surface, facing downward and with the thermal grease facing up.



6. Press down on the release lever to move it outward to release it from the retention hook.



7. Lift the processor cover.



8. Lift the processor to remove it from its socket and place it in an antistatic packaging.



## Installing the Processor

1. Align the two notches on the processor and insert it into the socket, the processor should slide in and fit into the socket without any force.



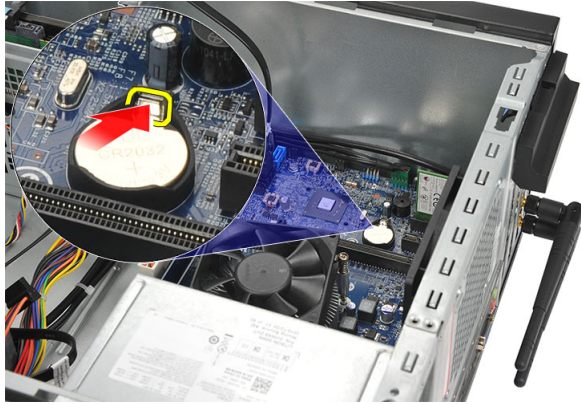
**NOTE:** The processor is notched at one end with a triangle marking. The same marking is also notched on the processor socket.

2. Press down on the release lever to lock it with the retention hook.
3. Close the processor cover.
4. Place the heat sink and fan assembly on the processor.
5. Tighten the captive screws securing the heat sink and fan assembly to the system board.
6. Connect the heat sink and fan assembly cable to the system board.
7. Replace the cover.
8. Follow the procedures in *After Working Inside Your Computer*.

## Removing the Coin-Cell Battery

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Press the release latch to pop the coin-cell battery from its socket.





4. Lift the coin-cell battery out of the computer.



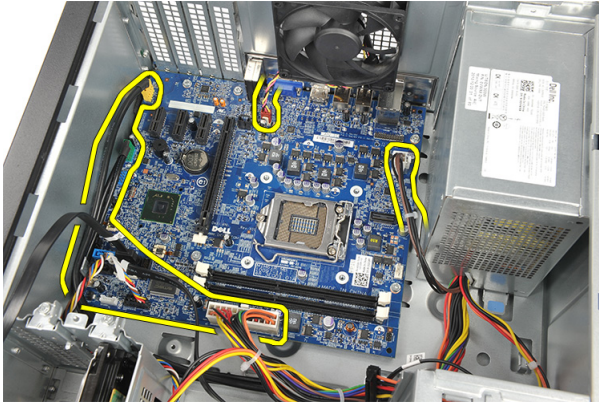
## Installing the Coin-Cell Battery

1. Place the coin-cell battery in it's socket on the system board.
2. Press the coin-cell battery into the socket till it snaps into place.
3. Replace the cover.
4. Follow the procedures in *After Working Inside Your Computer*.

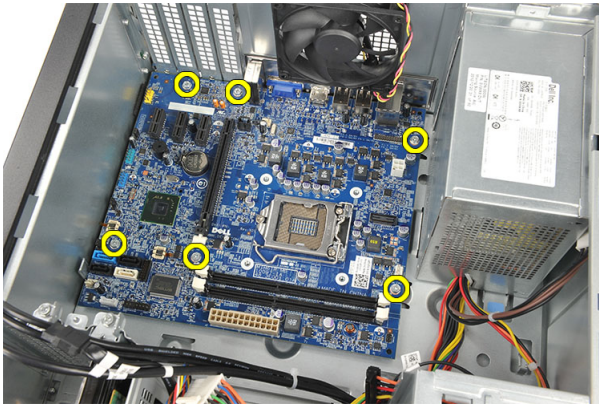
## Removing the System Board

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the:
  - a) cover
  - b) memory
  - c) system fan
  - d) processor
  - e) expansion card
  - f) WLAN card
3. Disconnect and un-thread all the cables connected to the system board.

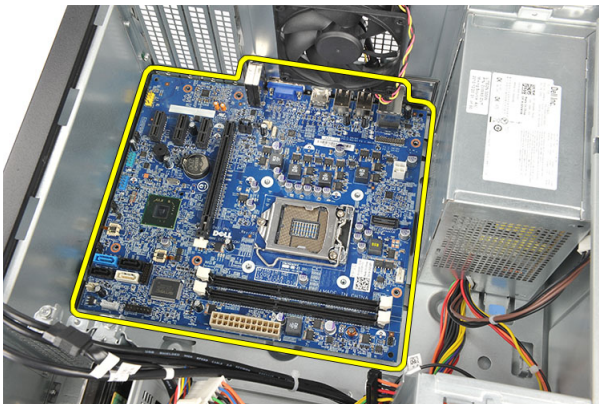




4. Remove the screws that secure the system board to the computer.



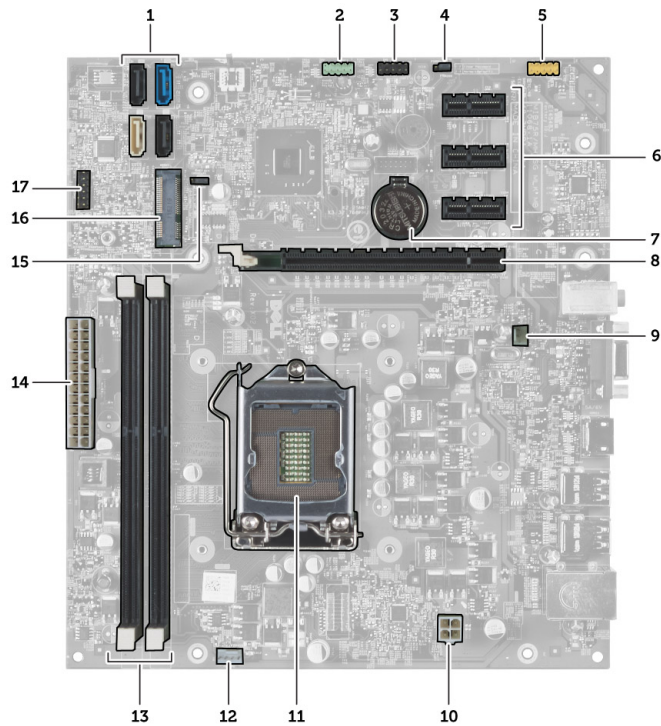
5. Slide the system board towards the front of the computer, and then carefully tilt it to a 45-degrees angle.



6. Lift the system board out of the computer chassis and place it in an antistatic packaging.

## System Board Layout

The following image displays the system board layout of the computer.



1. SATA connectors (SATA0, SATA1, SATA2, SATA3)
2. front USB connector
3. front USB Connector
4. password reset jumper
5. audio connector
6. PCI Express x1 card slot
7. CMOS (coin-cell) battery
8. PCI Express x16 card slot
9. system fan connector
10. power connector
11. processor socket
12. processor fan connector
13. memory module connectors (DIMM 1 and 2)
14. main power connector
15. CMOS clear reset jumper
16. PCI Express-mini connector
17. front LED power connector

## Installing the System Board

1. Place the system board into the computer and then slide it towards the back of the computer.
2. Replace the screws to secure the system board to the computer.
3. Connect all the cables to the system board.
4. Replace the:

- a) memory
  - b) system fan
  - c) WLAN card
  - d) expansion card
  - e) processor
  - f) cover
5. Follow the procedures in *After Working Inside Your Computer*.



# System Setup

System Setup enables you to manage your computer hardware and specify BIOS-level options. From the System Setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

## Boot Sequence

Boot Sequence allows you to bypass the System Setup-defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing <F2> key
- Bring up the one-time boot menu by pressing <F12> key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot-menu options are:

- Removable Drive (if available)
- STXXXX Drive



**NOTE:** XXX denotes the SATA drive number.

- Optical Drive
- Diagnostics



**NOTE:** Choosing Diagnostics, will display the **ePSA diagnostics** screen.

The boot sequence screen also displays the option to access the System Setup screen.

## Navigation Keys


The following table displays the system setup navigation keys.



**NOTE:** For most of the system setup options, changes that you make are recorded but do not take effect until you restart the system.

**Table 1. Navigation Keys**

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.


Keys	Navigation
<Enter>	Allows you to select a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
<Tab>	Moves to the next focus area.
	 <b>NOTE:</b> For the standard graphics browser only.
<Esc>	Moves to the previous page till you view the main screen. Pressing <Esc> in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.
<F1>	Displays the System Setup help file.

## System Setup Overview

System Setup allows you to:


- change the system configuration information after you add, change, or remove any hardware in your computer.
- set or change a user-selectable option such as the user password.
- read the current amount of memory or set the type of hard drive installed.

Before you use System Setup, it is recommended that you write down the System Setup screen information for future reference.

 **CAUTION:** Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.

## Enter System Setup

1. Turn on (or restart) your computer.
2. When the blue DELL logo is displayed, you must watch for the F2 prompt to appear.
3. Once the F2 prompt appears, press <F2> immediately.

 **NOTE:** The F2 prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it to display, and then press <F2> . If you press <F2> before you are prompted, this keystroke will be lost.

4. If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then, shut down your computer and try again.

## Jumper Settings

To change a jumper setting, pull the plug off its pin(s) and carefully fit it down onto the pin(s) indicated on the system board. The following table displays the system board jumper settings.

**Table 2. Jumper Settings**

Jumper	Setting	Description
PSWD	Default	Password features are enabled
RTCRST	pin 1 and 2	Real-time clock reset. Can be used for troubleshooting.

# System Setup Screens

**Table 3. System Setup Layout**

**Menu** — Appears on top of the System Setup window. This field provides a menu to access the System Setup options. Press < Left Arrow > and < Right Arrow > keys to navigate. As a **Menu** option is highlighted, the **Options List** lists the options that define the hardware installed on your computer.

**Options List** — Appears on the left side of the System Setup window. The field lists features that define the configuration of your computer, including installed hardware, power conservation, and security features. Scroll up and down the list with the up- and down-arrow keys. As an option is highlighted, the **Options Field** displays the option's current and available settings.

**Options Field** — Appears on the right side of **Dell Diagnostics** and contains information about each option listed in the **Dell Diagnostics**. In this field you can view information about your computer and make changes to your current settings. Press < Enter > to make changes to your current settings. Press < ESC > to return to the **Dell Diagnostics**.

**Dell Diagnostics** — Appears on the right side of the System Setup window and contains help information about the option selected in **Dell Diagnostics**.



**NOTE:** Not all settings listed in the **Options Field** are changeable.

**Dell Diagnostics** — Appears below the **Dell Diagnostics** and lists keys and their functions within the active system setup field.

Use the following keys to navigate through the System Setup screens:

**Table 4. Keystroke Descriptions**

Keystroke	Action
< F2 >	Displays information on any selected item in the System Setup.
< Esc >	Exit from current view or switch the current view to the <b>Dell Diagnostics</b> page in the System Setup.
< Up Arrow > or < Down Arrow >	Select an item to display.
< Left Arrow > or < Right Arrow >	Select a menu to display.
– or +	Change existing item value.
< Enter >	Select the sub menu or execute command.
< F9 >	Load setup default.
< F10 >	Save current configuration and exit System Setup.

## System Setup Options

**Table 5. Main**

<b>System Information</b>	Displays the computer model number.
BIOS Version	Displays the BIOS revision.

Build Date	Displays the date the system BIOS was built.
System Date	Re-sets the date on the computer's internal calendar.
System Time	Re-sets the time on the computer's internal clock.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of your computer (if available).

#### Processor Information

Processor Type	Displays the type of processor.
L2 Cache Size	Displays the processor L2 cache size.
L3 Cache Size	Displays the processor L3 cache size.

#### Memory Information

Memory Installed	Displays the total computer memory.
Memory Speed	Displays the memory speed.
Memory Technology	Displays the type and technology.

#### Device Information

SATA 0	Displays the model number and capacity of the hard drive.
SATA 1	
SATA 2	
SATA 3	

**Table 6. Advanced**

CPU Configuration		
Hyper-threading	Enable or disable processor hyper-threading.	Default: Enabled
Limit CPUID Value	Enable or disable the Limit CPUID Value feature.	Default: Enabled
CPU XD Support	Enable or disable the CPU XD feature.	Default: Enabled
Intel Virtualization Technology	Enable or disable the Intel Virtualization feature.	Default: Enabled
Intel SpeedStep	Enable or disable the Intel SpeedStep feature.	Default: Enabled
CPU C6 Report	Enable or disable the processor power saving report to the operating system.	Default: Enabled
System Configuration		
Onboard Audio Controller	Enable or disable the onboard audio controller.	Default: Enabled
Onboard LAN Controller	Enable or disable the onboard LAN controller.	Default: Enabled
Onboard LAN Boot ROM	Enable or disable the onboard LAN boot ROM.	Default: Disabled



<b>CPU Configuration</b>		
USB Controller	Enable or disable the USB controller.	Default: Enabled
USB Storage Boot Function	Enable or disable the option to boot through a USB device	Default: Enabled
<b>Power Management</b>		
Restore AC Power Loss	Specifies how the computer will behave when AC power is restored after an AC power loss.	Default: Power Off
Wake on Lan from S4/S5	Allows the computer to be remotely turned on.	Default: Enabled
Auto Power On	Enable or disable the computer to power on automatically. You can further specify the date and time the computer can power ON.	Default: Disabled
<b>Post Behaviour</b>		
NumLock Key	Enable or disable the NumLock State light during POST.	Default: On
Keyboard Error Report	Enable or disable the Keyboard Error Report to be displayed during POST.	Default: Enabled

**Table 7. Boot**

Set Boot Priority	Specifies the order of different devices in which the computer will boot through at start up.
Hard Disk Drives	Specify which hard drive the computer can boot through.
CD/DVD ROM Drives	Specify which CD/DVD (optical drives) the computer can boot through.

**Table 8. Security**



Unlock Setup Status	Specifies whether the BIOS can be edited.
Admin Password Status	Specifies whether an administrator password has been assigned.
System Password Status	Specifies whether a system password has been assigned.
Admin Password	Allows you to change or delete the administrator password.

## Exit

This section allows you to save, discard, and load default settings before exiting from System Setup.

## Updating the BIOS

It is recommended to update your BIOS (system setup), on replacing the system board or if an update is available. For notebooks, ensure that your computer battery is fully charged and connected to a power outlet

1. Restart the computer.
2. Go to [support.dell.com/support/downloads](http://support.dell.com/support/downloads).
3. If you have your computer's Service Tag or Express Service Code:
  -  **NOTE:** For desktops, the service tag label is available on the front of your computer.
  -  **NOTE:** For notebooks, the service tag label is available on the bottom of your computer.
  - a) Enter the **Service Tag** or **Express Service Code** and click **Submit**.
  - b) Click **Submit** and proceed to step 5.
4. If you do not have your computer's service tag or express service code, select one of the following:
  - a) **Automatically detect my Service Tag for me**
  - b) **Choose from My Products and Services List**
  - c) **Choose from a list of all Dell products**
5. On the application and drivers screen, under the **Operating System** drop-down list, select **BIOS**.
6. Identify the latest BIOS file and click **Download File**.
7. Select your preferred download method in the **Please select your download method below window**; click **Download Now**.

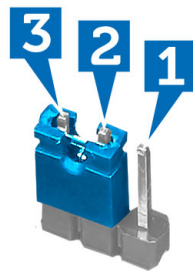
The **File Download** window appears.
8. Click **Save** to save the file on your computer.
9. Click **Run** to install the updated BIOS settings on your computer.

Follow the instructions on the screen.

## Clearing Forgotten Password

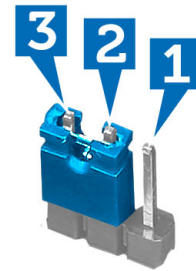
The computer's software security features include a system password and a setup password. The password jumper disables any password(s) currently in use. There are 3-pins for the password reset jumper.

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Identify the password reset jumper on the system board, see the System Board Layout.
4. Remove the 2-pin jumper plug from pins 2 and 3 and fix it on pins 1 and 2



5. Install the cover.
6. Connect the computer to the electrical outlet and power-on the computer to clear the password.
7. Power-off the computer and disconnect the power cable from the electrical outlet.
8. Remove the cover.

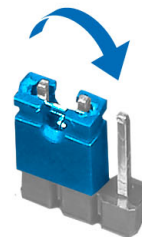
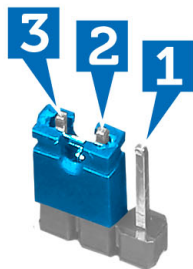
9. Replace the jumper on the pins 2 and 3.



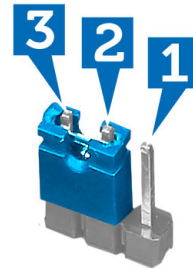
10. Install the cover.
11. Follow the procedures in *After Working Inside Your Computer*.
12. Power-on the computer.
13. Go to the system setup, and assign a new system or setup password.

## Clearing CMOS Passwords

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the cover.
3. Identify the CMOS password reset jumper on the system board, see the System Board Layout.
4. Remove the 2-pin jumper plug from pins 2 and 3 and fix it on pins 1 and 2



5. Install the cover.
6. Connect the computer to the electrical outlet and power-on the computer to clear the password.
7. Power-off the computer and disconnect the power cable from the electrical outlet.
8. Remove the cover.
9. Replace the jumper on the pins 2 and 3.



10. Install the cover.
11. Follow the procedures in *After Working Inside Your Computer*.
12. Power-on the computer.


## System and Setup Password

You can create a system password and a setup password to secure your computer.

Password Type	Description
<b>System password</b>	Password that you must enter to log on to your system.
<b>Setup password</b>	Password that you must enter to access and make changes to the BIOS settings of your computer.


 **CAUTION:** The password features provide a basic level of security for the data on your computer.

 **CAUTION:** Anyone can access the data stored on your computer if it is not locked and left unattended.

 **NOTE:** Your computer is shipped with the system and setup password feature disabled.

## Assigning a System Password and Setup Password

You can assign a new **System Password** and/or **Setup Password** or change an existing **System Password** and/or **Setup Password** only when **Password Status** is **Unlocked**. If the Password Status is **Locked**, you cannot change the System Password.

 **NOTE:** If the password jumper is disabled, the existing System Password and Setup Password is deleted and you need not provide the system password to log on to the computer.

To enter a system setup, press <F2> immediately after a power-on or reboot.

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press <Enter>. The **System Security** screen appears.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, enter your system password, and press <Enter> or <Tab>. Use the following guidelines to assign the system password:
  - A password can have up to 32 characters.
  - The password can contain the numbers 0 through 9.

- Only lower case letters are valid, upper case letters are not allowed.
- Only the following special characters are allowed: space, ("), (+), (,), (-), (.), (/), (:), ([), (\), (]), (^).


Re-enter the system password when prompted.

4. Type the system password that you entered earlier and click **OK**.
5. Select **Setup Password**, type your system password and press <Enter> or <Tab>. A message prompts you to re-type the setup password.
6. Type the setup password that you entered earlier and click **OK**.
7. Press <Esc> and a message prompts you to save the changes.
8. Press <Y> to save the changes.  
The computer reboots.

## Deleting or Changing an Existing System and/or Setup Password


Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

To enter the System Setup, press <F2> immediately after a power-on or reboot.


1. In the **System BIOS** or **System Setup** screen, select **System Security** and press <Enter>. The **System Security** screen is displayed.
  2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
  3. Select **System Password**, alter or delete the existing system password and press <Enter> or <Tab>.
  4. Select **Setup Password**, alter or delete the existing setup password and press <Enter> or <Tab>.
-  **NOTE:** If you change the System and/or Setup password, re-enter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.
5. Press <Esc> and a message prompts you to save the changes.
  6. Press <Y> to save the changes and exit from the System Setup.  
The computer reboots.

## Disabling a System Password


The system's software security features include a system password and a setup password. The password jumper disables any password(s) currently in use.

 **NOTE:** You can also use the following steps to disable a forgotten password.

1. Follow the procedures in *Before Working on Your Computer*.
2. Remove the cover.
3. Identify the PSWD jumper on the system board.
4. Remove the PSWD jumper from the system board.

 **NOTE:** The existing passwords are not disabled (erased) until the computer boots without the jumper.

5. Install the cover.

 **NOTE:** If you assign a new system and/or setup password with the PSWD jumper installed, the system disables the new password(s) the next time it boots.

6. Connect the computer to the electrical outlet and power-on the computer.

7. Power-off the computer and disconnect the power cable from the electrical outlet.
8. Remove the cover.
9. Replace the PSWD jumper on the system board.
10. Install the cover.
11. Follow the procedures in *After Working on Your Computer*.
12. Power-on the computer.
13. Go to the system setup, and assign a new system or setup password. See *Setting up a System Password*.

# Diagnostics

If you experience a problem with your computer, run the ePSA diagnostics before contacting Dell for technical assistance. The purpose of running diagnostics is to test your computer's hardware without requiring additional equipment or risking data loss. If you are unable to fix the problem yourself, service and support personnel can use the diagnostics results to help you solve the problem.

## Enhanced Pre-Boot System Assessment (ePSA) Diagnostics

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing



**CAUTION:** Use the system diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.



**NOTE:** Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.

1. Power-on the computer.
2. As the computer boots, press the <F12> key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.  
The **Enhanced Pre-boot System Assessment** window is displayed, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. If you wish to run a diagnostic test on a specific device, press <Esc> and click **Yes** to stop the diagnostic test.
5. Select the device from the left pane and click **Run Tests**.
6. If there are any issues, error codes are displayed.  
Note the error code and contact Dell.





# Troubleshooting

## Diagnostic Power LED Codes

Power LED Light Status	Possible Cause	Troubleshooting Steps
Off	The computer is either turned off or is not receiving power.	<ul style="list-style-type: none"> <li>• Re-seat the power cable in the power connector on the back of the computer and the electrical outlet.</li> <li>• If the computer is plugged into a power strip, ensure the power strip is plugged into an electrical outlet and is turned on. Also, bypass power protection devices, power strips, and power extension cables to verify the computer turns on properly.</li> <li>• Ensure the electrical outlet is working by testing it with another device, such as a lamp.</li> </ul>
Blinking Amber	Computer fails to complete POST or processor failure.	<ul style="list-style-type: none"> <li>• Remove and then reinstall any cards.</li> <li>• Remove and then reinstall the graphics card, if applicable.</li> <li>• Ensure the power cable is connected to the motherboard and processor.</li> </ul>
Steady Amber	Computer is in standby or this is a computer fault error condition, including the power supply. Only the +5VSB rail on the power supply is working correctly.	<ul style="list-style-type: none"> <li>• Press the power button to bring the computer out of standby mode.</li> <li>• Ensure all power cables are securely connected to the system board.</li> <li>• Ensure the main power cable and front panel cable are securely connected to the system board.</li> </ul>
Steady White	The computer is fully functional and in the On state.	<p>If the computer is not responding, do the following:</p> <ul style="list-style-type: none"> <li>• Ensure the display is connected and turned on.</li> </ul>

Power LED Light Status	Possible Cause	Troubleshooting Steps
		<ul style="list-style-type: none"> <li>If the display is connected and turned on, listen for a beep code.</li> </ul>

## Diagnostic Beep Codes

Table 9. Beep Codes with Cause and Troubleshooting Steps

Beep	Possible Cause	Troubleshooting Steps
1	BIOS ROM checksum in progress of failure.	System board failure, covers BIOS corruption or ROM error
2	No RAM detected	No memory detected
3	<ul style="list-style-type: none"> <li>Chipset Error (Intel B75 Chipset, DMA/IMR/Timer Error for Intel platform); Chipset error</li> <li>Time-Of-Day Clock test failure</li> <li>Gate A20 failure</li> <li>Super I/O chip failure</li> <li>Keyboard controller test failure</li> </ul>	System board failure
4	RAM Read/Write failure	Memory failure
5	RTC Power Fail	COMS battery failure
6	Video BIOS Test failure	Video card failure
7	Processor failure	Processor failure

## Diagnostic Error Messages

Error Messages	Description
AUXILIARY DEVICE FAILURE	The touch pad or external mouse may be faulty. For an external mouse, check the cable connection. Enable the <b>Pointing Device</b> option in the system setup program.
BAD COMMAND OR FILE NAME	Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct pathname.
CACHE DISABLED DUE TO FAILURE	The primary cache internal to the microprocessor has failed. <a href="#">Contact Dell</a> .
CD DRIVE CONTROLLER FAILURE	The optical drive does not respond to commands from the computer.
DATA ERROR	The hard drive cannot read the data.

Error Messages	Description
DECREASING AVAILABLE MEMORY	One or more memory modules may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
DISK C: FAILED INITIALIZATION	The hard drive failed initialization. Run the hard drive tests in the Dell Diagnostics.
DRIVE NOT READY	The operation requires a hard drive in the bay before it can continue. Install a hard drive in the hard drive bay.
ERROR READING PCMCIA CARD	The computer cannot identify the ExpressCard. Reinsert the card or try another card.
EXTENDED MEMORY SIZE HAS CHANGED	The amount of memory recorded in non-volatile memory (NVRAM) does not match the memory installed in the computer. Restart the computer. If the error appears again, <a href="#">contact Dell</a> .
THE FILE BEING COPIED IS TOO LARGE FOR THE DESTINATION DRIVE	The file that you are trying to copy is too large to fit on the disk, or the disk is full. Try copying the file to a different disk or use a larger capacity disk.
A FILENAME CANNOT CONTAIN ANY OF THE FOLLOWING CHARACTERS: \ / : * ? " < >   -	Do not use these characters in filenames.
GATE A20 FAILURE	A memory module may be loose. Reinstall the memory modules and, if necessary, replace them.
GENERAL FAILURE	The operating system is unable to carry out the command. The message is usually followed by specific information. For example, Printer out of paper. Take the appropriate action.
HARD-DISK DRIVE CONFIGURATION ERROR	The computer cannot identify the drive type. Shut down the computer, remove the hard drive, and boot the computer from a optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. Run the Hard Disk Drive tests in the Dell Diagnostics.
HARD-DISK DRIVE CONTROLLER FAILURE 0	The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from a optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics.
HARD-DISK DRIVE FAILURE	The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from a optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another

Error Messages	Description
HARD-DISK DRIVE READ FAILURE	<p>drive. Run the <b>Hard Disk Drive</b> tests in the <b>Dell Diagnostics</b>.</p> <p>The hard drive may be defective. Shut down the computer, remove the hard drive, and boot the computer from a optical. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the <b>Hard Disk Drive</b> tests in the Dell Diagnostics.</p>
INSERT BOOTABLE MEDIA	<p>The operating system is trying to boot to non-bootable media, such as a floppy disk or optical drive. Insert bootable media.</p>
INVALID CONFIGURATION INFORMATION-PLEASE RUN SYSTEM SETUP PROGRAM	<p>The system configuration information does not match the hardware configuration. The message is most likely to occur after a memory module is installed. Correct the appropriate options in the system setup program.</p>
KEYBOARD CLOCK LINE FAILURE	<p>For external keyboards, check the cable connection. Run the <b>Keyboard Controller</b> test in the <b>Dell Diagnostics</b>.</p>
KEYBOARD CONTROLLER FAILURE	<p>For external keyboards, check the cable connection. Restart the computer, and avoid touching the keyboard or the mouse during the boot routine. Run the <b>Keyboard Controller</b> test in the <b>Dell Diagnostics</b>.</p>
KEYBOARD DATA LINE FAILURE	<p>For external keyboards, check the cable connection. Run the <b>Keyboard Controller</b> test in the <b>Dell Diagnostics</b>.</p>
KEYBOARD STUCK KEY FAILURE	<p>For external keyboards or keypads, check the cable connection. Restart the computer, and avoid touching the keyboard or keys during the boot routine. Run the <b>Stuck Key</b> test in the <b>Dell Diagnostics</b>.</p>
LICENSED CONTENT IS NOT ACCESSIBLE IN MEDIADIRECT	<p>Dell MediaDirect cannot verify the Digital Rights Management (DRM) restrictions on the file, so the file cannot be played.</p>
MEMORY ADDRESS LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	<p>A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.</p>
MEMORY ALLOCATION ERROR	<p>The software you are attempting to run is conflicting with the operating system, another program, or a utility. Shut down the computer, wait 30 seconds, and then restart it. Try to run the program again. If the error message still appears, see the software documentation.</p>
MEMORY DOUBLE WORD LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	<p>A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.</p>

Error Messages	Description
MEMORY ODD/EVEN LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
MEMORY WRITE/READ FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.
NO BOOT DEVICE AVAILABLE	The computer cannot find the hard drive. If the hard drive is your boot device, ensure that the drive is installed, properly seated, and partitioned as a boot device.
NO BOOT SECTOR ON HARD DRIVE	The operating system may be corrupted, <a href="#">contact Dell</a> .
NO TIMER TICK INTERRUPT	A chip on the system board may be malfunctioning. Run the <b>System Set</b> tests in the <b>Dell Diagnostics</b> .
NOT ENOUGH MEMORY OR RESOURCES. EXIT SOME PROGRAMS AND TRY AGAIN	You have too many programs open. Close all windows and open the program that you want to use.
OPERATING SYSTEM NOT FOUND	Reinstall the hard drive (see your <i>Owner's Manual</i> at support.dell.com). If the problem persists, <a href="#">contact Dell</a> .
OPTIONAL ROM BAD CHECKSUM	The optional ROM has failed. <a href="#">Contact Dell</a> .
SECTOR NOT FOUND	The operating system cannot locate a sector on the hard drive. You may have a defective sector or corrupted FAT on the hard drive. Run the Windows error-checking utility to check the file structure on the hard drive. See Windows Help and Support for instructions (click Start > Help and Support). If a large number of sectors are defective, back up the data (if possible), and then reformat the hard drive.
SEEK ERROR	The operating system cannot find a specific track on the hard drive.
SHUTDOWN FAILURE	A chip on the system board may be malfunctioning. Run the <b>System Set</b> tests in the <a href="#">contact Dell</a> .
TIME-OF-DAY CLOCK LOST POWER	System configuration settings are corrupted. Connect your computer to an electrical outlet to charge the battery. If the problem persists, try to restore the data by entering the system setup program, then immediately exit the program. If the message reappears, <a href="#">contact Dell</a> .
TIME-OF-DAY CLOCK STOPPED	The reserve battery that supports the system configuration settings may require recharging. Connect your computer to an electrical outlet to charge the battery. If the problem persists, contact Dell.
TIME-OF-DAY NOT SET-PLEASE RUN THE SYSTEM SETUP PROGRAM	The time or date stored in the system setup program does not match the system clock. Correct the settings for the <b>Date and Time</b> options.
TIMER CHIP COUNTER 2 FAILED	A chip on the system board may be malfunctioning. Run the <b>System Set tests</b> in the <b>Dell Diagnostics</b> .

Error Messages	Description
UNEXPECTED INTERRUPT IN PROTECTED MODE	The keyboard controller may be malfunctioning, or a memory module may be loose. Run the <b>System Memory</b> tests and the <b>Keyboard Controller</b> test in the <a href="#">contact Dell</a> .
X:\ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY	Insert a disk into the drive and try again.
WARNING: BATTERY IS CRITICALLY LOW	The battery is running out of charge. Replace the battery, or connect the computer to an electrical outlet; otherwise, activate hibernate mode or shut down the computer.

## System Error Messages

System Message	Description
Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support	The computer failed to complete the boot routine three consecutive times for the same error.
CMOS checksum error	Possible motherboard failure or Real-time clock (RTC) battery low.
CPU fan failure	CPU fan has failed
System fan failure	System fan has failed
Hard-disk drive failure	Possible hard disk drive failure during POST
Keyboard failure	Keyboard failure or loose cable. If reseating the cable does not solve the problem, replace the keyboard.
No boot device available	<p>No bootable partition on hard disk drive, the hard disk drive cable is loose, or no bootable device exists.</p> <ul style="list-style-type: none"> <li>If the hard drive is your boot device, ensure that the cables are connected and that the drive is installed properly and partitioned as a boot device.</li> <li>Enter system setup and ensure that the boot sequence information is correct.</li> </ul>
No timer tick interrupt	A chip on the system board might be malfunctioning or motherboard failure.
USB over current error	Disconnect the USB device. The USB device needs more power for it to function properly. Use an external power source to connect the USB device, or if the device has two USB cables, connect both of them.
CAUTION - Hard Drive SELF MONITORING SYSTEM has reported that a parameter has exceeded its normal operating range. Dell recommends that you back up your data regularly. A parameter out of range may or may not indicate a potential hard drive problem	S.M.A.R.T error, possible hard disk drive failure

# Technical Specifications





**NOTE:** Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information regarding the configuration of your computer, click **Start** → **Help and Support** and select the option to view information about your computer.

Processor	
Type	<ul style="list-style-type: none"> <li>Intel Core i3 series</li> <li>Intel Core i5 series</li> <li>Intel Pentium Dual-Core</li> <li>Intel Celeron</li> </ul>
L2 cache	up to 6 MB (depending on the processor)
Memory	
Memory module connector	two DIMM slots
Memory module capacity	2 GB, 4 GB, 6 GB or 8 GB
Type	1333 MHz and 1600 MHz DDR3 (Non-ECC)
Minimum memory	2 GB
Maximum memory	8 GB
Video	
Video Type:	
Integrated	Intel HD Graphics (with Intel Pentium Dual-Core CPU-GPU combo)
Discrete	<ul style="list-style-type: none"> <li>Nvidia GeForce GT 620, 1GB, DDR3</li> <li>Nvidia GeForce GT640 1G GDDR5</li> <li>AMD Radeon HD 7570 1GB DDR5</li> </ul>
Integrated video memory	up to 1.7 GB shared video memory (Microsoft Windows Vista and Windows 7)
Audio	
Integrated	Conexant (CX20641-11Z)
Network	
Integrated	Realtek 10/100/1000 Mbps Ethernet

System Information		
Chipset	Intel B75	
BIOS chip (NVRAM)	64 Mb	
Expansion Bus		
Bus type	<ul style="list-style-type: none"><li>• PCI Express 2.0</li><li>• SATA 1.0 and 2.0</li><li>• USB 2.0</li><li>• USB 3.0</li><li>• 19-in-1 media card reader (optional)</li></ul>	
Bus speed:		
PCI Express	<ul style="list-style-type: none"><li>• PCI Express x1-slot (includes mini PCI-Express) support speed – 500 Mbps (Gen 1/2)</li><li>• PCI Express x16-slot support speed – 8 Gbps (Gen 1/2/3)</li></ul>	
SATA	1.5/3.0/6.0 Gbps	
USB 2.0	480 Mbps	
USB 3.0	5 Gbps	
Cards		
PCIe x16	one full-height card	
PCIe x1	up to three full-height cards	
Drives		
Externally accessible:		
5.25 inch drive bays	two	
Internally accessible:		
3.5 inch drive bays	two	
External Connectors		
Audio:		
Back panel	three connectors	
Front Panel	two front-panel connectors for headphone and microphone	
Network	one RJ45 connector	
USB:		
Front panel	two USB 2.0 connectors	
Back panel	<ul style="list-style-type: none"><li>• four USB 3.0 connectors</li></ul>	



<b>External Connectors</b>	
	<ul style="list-style-type: none"> <li>two USB 2.0 connectors</li> </ul>
Video	<ul style="list-style-type: none"> <li>one 15-hole VGA connector</li> <li>one 19-pin HDMI connector</li> </ul>
<b>Control Lights And Diagnostic Lights</b>	
power button light	<p>white light — solid white light indicates power-on state.</p> <p>amber light — solid amber light indicates sleep/stand by state of the computer; blinking amber light indicates a problem with the system board.</p>
drive activity light	white light — blinking white light indicates that the computer is reading data from, or writing data to the hard drive.
<b>Power</b>	
Coin-cell battery	3 V CR2032 lithium coin cell
Input voltage	<ul style="list-style-type: none"> <li>100 VAC to 127 VAC</li> <li>200 VAC to 240 VAC</li> </ul>
Input frequency	50 Hz to 60 Hz
Wattage	300 W
Input current	9.00 A (8.00 A)/4.50 A
 <b>NOTE:</b>	Total power output of +5.50 V and +3.30 V can not exceed 160 W
Maximum heat dissipation:	1574 BTU/hr
 <b>NOTE:</b>	Heat dissipation is calculated by using the power supply wattage rating.
<b>Physical</b>	
Height	366.00 mm (14.41 inches)
Width	175.00 mm (6.89 inches)
Depth	434.00 mm (17.09 inches)
Weight (Minimum)	7.90 kg (17.40 lb)
<b>Environmental</b>	
Temperature:	
Operating	10 °C to 35 °C (50 °F to 95 °F)
Storage	–40 °C to 65 °C (–40 °F to 149 °F)

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**Environmental**

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Relative humidity 20 % to 80 % (noncondensing)

Altitude:

Operating -16 m to 3048 m (-50 to 10,000 ft)




**NOTE:** For altitudes above 2950 feet, the maximum operating temperature is derated 1°F/550 ft.

Storage -15.20 m to 10,668 m (-50 ft to 35,000 ft)

Airborne contaminant level G1 as defined by ISA-S71.04-1985

## Contacting Dell

 **NOTE:** If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit **support.dell.com**.
2. Select your support category.
3. If you are not a U.S. customer, select your country code at the bottom of the **support.dell.com** page, or select **All** to see more choices.
4. Select the appropriate service or support link based on your need.